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Resource Review

Online with Stem Cells

The International Society for Stem Cell Research (ISSCR) is a relatively new society formed in 2002 and headed by Leonard Zon, Irving Weissman, and Doug Melton. The goal of the society is to foster the exchange of information on stem cell research among scientists and provide educational access to the public. As one approach to this, the ISSCR has gone online with a comprehensive website on stem cells, cloning, and the scientific and ethical issues therein: www.isscr.org (see Figure 1). The website is an interactive tool for anyone with an interest in stem cell biology, and its development was made possible by a grant from the Juvenile Diabetes Research Foundation International.

Some of the website contents are devoted to the politics and policies of stem cell research, with a focus on human embryonic and adult stem cells and therapeutic cloning. One of the events emphasized on the site is the ISSCR's annual meeting, which was very successful last year and will hopefully continue to be so. The 2003 meeting was opened by NIH Director Dr. Elias Zerhouni, and the website currently features a transcript of his remarks supporting the ISSCR and its efforts to bring together stem cell scientists and educate the public about stem cell biology. The website also includes information from other national meetings that pertain to stem cells and cloning. For example, reports on the endorsements of therapeutic cloning by both the American Medical Association (AMA) and the American Society for Reproductive Medicine (ASRM) announced at their recent meetings are included. Stem cell news is further reported in the bimonthly ISSCR newsletter called "The Pulse." Back issues of the newsletter are included featuring news in the stem cell and cloning arenas, job openings, funding for stem cell research, training courses, and meeting and literature highlights. The Pulse is not quite as comprehensive as The Stem Cell Research News, http://www.stemcellresearchnews.com/, and not as personal as the Stem Cell Network's newsletters, http://www.stemcellnetwork.ca/news/newsletters.php, but is unique in that it covers more of the news in depth with references to the primary literature, not just press releases.

Another goal of the ISSCR site is to provide a platform for public education on all aspects of research related to stem cells, and the society has appealed to members to submit small reviews and news of the stem cell field that will then be available to the public. Beautiful images of differentiated human stem cells are posted along with explanations and credits. The website has a list of frequently asked questions (FAQs) ranging from "what are the potential uses of human stem cells?" to "are some kinds of stem cells better than others?" The answers to these questions are posted complete with links to glossary items containing detailed definitions of terms such as "pluripotent stem cells" and "multipotent stem cells," jargon often used erroneously in the literature. This part of the site would be improved by further expansion, and a useful addition might be a moderated discussion room. From the perspective of the general public, one of the most topical subjects regarding stem cells is that of ethics in research. The website has comprehensive links to papers on ethical issues related to embryonic stem cell research, NIH policy, and statements from the Vatican. This part of the site would also benefit from expansion and development to make it a more comprehensive educational resource for the public. Other available resources are also documented; for example, the site provides assistance in locating books on various subjects from the intricacies of culturing human ES cells to a guide for patients of bone marrow and blood stem cell transplants.

One of the new features of the site is a "Topic of the Month" section. For November, the featured topic is "Reproductive Cloning and Its Inefficiency." A concise review of the field is outlined with recent papers and reviews complete with PubMed links to the abstracts and URLs to download the manuscripts if the reader has access to the original journal sites. This section could well become a very useful resource once the number of subjects covered is expanded. Future topics will include microRNAs, asymmetric division of stem cells, somatic cell nuclear transfer, hematopoietic stem cell expansion, cancer stem cells, proteomics, genomics, transcriptomics, and epigenetics. I think it would also be informative to have more extensive discussions regarding differences in potential of adult versus embryonic stem cells in one of these features, and perhaps editorial pieces about some of the more controversial subjects in stem cell research, such as stem cell plasticity and fusion.

Another unique feature of the site is the "Junior Investigators' Toolbox," organized by the Junior Investigators Committee and designed to promote networking and career building for beginning investigators (young PIs, postdocs, and students). This promises to be a valuable resource for many junior investigators, not only stem cell researchers. There are links to grant resources, posted positions at the NIH, job listing services, graduate programs, and so on. A number of stem cell centers are being established across the United States, and these new centers are trying to locate and hire promising new faculty. Because of this current emphasis on stem cell biology recruitment, it might be useful to post faculty and postdoctoral positions more prominently on the site than the current job posting section. Future goals are to help encourage young researchers with success stories, advice on negotiating start-up packages, mentoring, and so forth.

Although most of the website is open access to all, paid membership does have benefits. These include a reduced registration fee for the annual meeting, and a special "ISSCR Members Area" of the website. One of the unique aspects of the members' section of the site is a list of up-to-date stem cell literature citations in EndNote formats. Members can download an EndNote

Figure 1. The ISSCR Website Home Page
Figure kindly provided by Jill Hronek and Suzanne Kadereit.

library with 177 citations (as of November 10, 2003) containing most of the stem cell papers or reviews published from 2003 onward. At present, it is not clear whether this will be expanded to include earlier years. Members can also search the ISSCR membership directory for other ISSCR members in the same geographic area or with expertise in a particular area of interest. Unfortunately the membership is still relatively small, but hopefully this will change over the coming months. If so, the membership directory would become a more comprehensive, and therefore more useful, international list of active stem cell biologists. Eventually there is also a goal of having PowerPoint slides posted that ISSCR members can download and use for their own talks. Finally, members can post their CV if looking for a new position, although this feature seems a bit limited in scope at present and it was not clear to me how the posted CVs would be accessed by potential employers.

Future plans for the website include a listing of quality reagents and commercial services for stem cell research. There will be information from members sharing their experiences with specific reagents and services, or with human ES cell procurement, culture, and differentiation. This interface between researchers and industry should help bring good quality reagents to the community more quickly and with more background information. Along these lines, it would be useful if the site included detailed protocols for culturing stem cells. Many investigators have these on their own websites, so perhaps more links could be set up. To complement the "Topic of the Month" feature, another very important plan will be the expansion of information targeted toward the public. There are plans for "Lay-Topic of the Month" reviews outlining the science behind a subject covered in the lay media such as reviews on organ regeneration, stem cell transdifferentiation and/or plasticity, and opinions and options for cord blood banking.

The ISSCR website is by no means the only Internet resource available for information about stem cells. For instance, in addition to the two news sites mentioned above, the NIH has a dedicated stem cell site with information aimed at scientists and the general public (see http://stemcells.nih.gov/). However, the ICCSR site will be a valuable resource for existing stem cell researchers and scientists interested in transitioning into this growing field. It also provides a useful source of information for the public interested in understanding this expanding and sometimes controversial subject. Educational resources, policy, and funding information are accessible in one easily navigated location that promises to expand even more. Bookmark www.isscr.org today; the only drawback is that you may not be able to stop reading.

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